



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/543,080

07/21/2005

Marco Pontanari

60130-2399; 02MRA0191

2571

26096 7590 02/26/2008
CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER

KNIGHT, DEREK DOUGLAS

ART UNIT

PAPER NUMBER

3681

MAIL DATE

DELIVERY MODE

02/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/543,080	Applicant(s) PONTANARI ET AL.	
	Examiner DEREK D. KNIGHT	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Allowable Subject Matter

1. The indicated allowability of claims 13-16 and 21-23 is withdrawn in view of the newly discovered reference(s) to **PETZOLD (US 6,886,425)**. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **KELLER (US 5,030,181)** in view of **PETZOLD (US 6,886,425)**.

A portion of Fig. 1 from **KELLER** has been reproduced below with added reference characters. **KELLER** discloses a drive axle assembly with a locking differential comprising: a driving input (A) defining a longitudinal axis; a carrier (C) including a pinion gear (B) driven by said driving input and a ring gear (24) in meshing engagement with said pinion gear; a differential including a differential gear assembly supported by a differential case (comprised of the ring gear (24) and the carrier (C)) wherein said ring gear is attached to said differential case (because it is integrally formed) to drive said differential gear assembly; a pair of axle shafts (1) driven by said differential gear assembly for rotation about a lateral axis, said lateral axis being transverse to said longitudinal axis; a locking mechanism including a shift collar (18) and an electronic actuator (16) for controlling movement of said shift collar wherein said

Art Unit: 3682

shift collar is movable between an unlocked position where speed differentiation between said pair of axle shafts is permitted and a locked position, and wherein said shift collar is moved into locking engagement with said differential case in response to an electronic signal such that said differential case, said shift collar and said pair of axle shafts are fixed for rotation together about said lateral axis, and wherein said electronic actuator comprises a coil (16) surrounding said shift collar wherein said electronic signal powers said coil to move said shift collar; wherein said shift collar includes an inboard end having a splined surface (21) and an outboard end, said inboard end having a greater diameter than said outboard end and wherein said coil defines a central bore surrounding said shift collar at said outboard end, said shift collar moving in an inboard direction in response to said coil being powered via said electronic signal such that said splined surface of said inboard end engages a mating splined surface (22) formed on said differential case such that said differential case is locked to said pair of axle shafts; an axle housing (2) for substantially enclosing said carrier and said pair of axle shafts wherein said coil is supported by said axle housing; and a resilient member (26) for automatically returning said shift collar to said unlocked position when said coil is not powered.

The differential case includes a first case half (C) and a second case half (24) attached to the first case half and wherein said electronic actuator selectively draws said shift collar into direct engagement with one of said first and second case halves.

A pair of side gears (D,E) with one side gear being fixed to each of said pair of axle shafts and wherein said differential gear assembly includes a differential spider (F)

Art Unit: 3682

having four support shafts orientated in an overall shape of a cross and four differential pinion gears (G) in meshing engagement with said side pair of gears with one of said four differential pinion gears being supported on each of said four support shafts and wherein said ring gear is fixed to one of said first and second case halves such that said ring gear, said differential case, said differential spider, and said four differential pinion gears all rotate as one unit to transfer power to said pair of axle shafts via said pair of side gears when no speed differentiation is required and when speed differentiation is required said four differential pinion gears rotate on respective support shafts to speed up rotation of one of said pair of axle shafts via a respective one of said pair of side gears while slowing rotation of the other of said pair of axle shafts via a respective other of said pair of side gears.

One of said pair of axle shafts (1) includes a set of inboard splines (H) and a set of outboard splines (I), said set of inboard splines cooperating with said respective one of said pair of side gears to fix said one of said pair of side gears for rotation with said one of said pair of axle shafts and said set of outboard splines cooperating with a splined bore formed inside said inboard end of said shift collar.

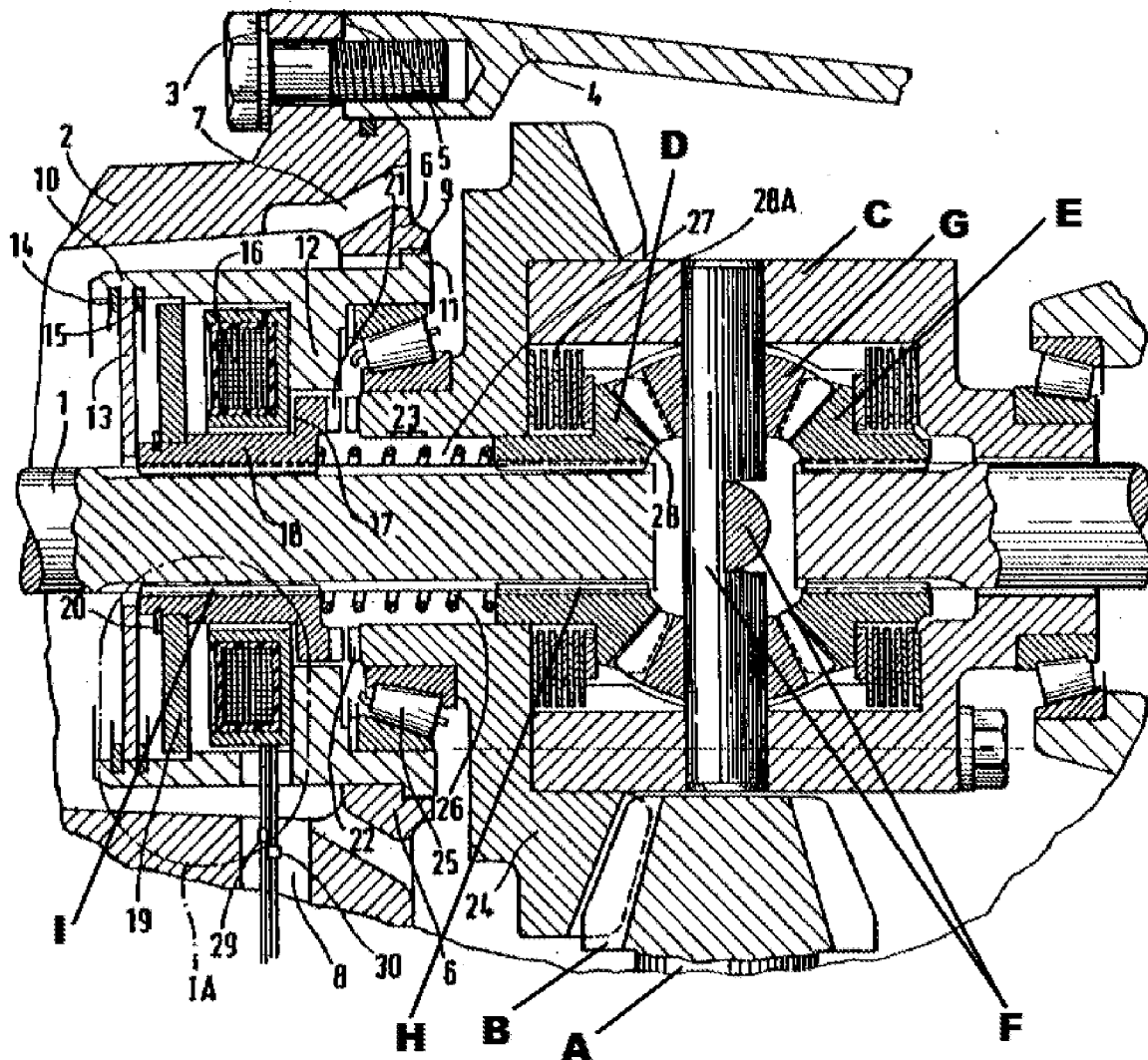


Figure 1: Taken from Figure 1 of KELLER (US 5,030,181)

KELLER does not disclose the resilient member surrounding an outer end portion of the shift collar and reacting between the coil and a washer mounted to the outboard end of the shift collar.

PETZOLD teaches an electromagnetic shift arrangement wherein a resilient member (46) surrounds an outer end portion (44) of a shift collar (18) and the resilient member reacts between a coil (40) and a washer (22) mounted to the shift collar.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the locking differential of **KELLER** such that the resilient member (26), shown as a coil spring, would be replaced by a plate spring and moved to the area between the armature plate (19) and the coil (16) in view of **PETZOLD** to allow for easier access to the spring for maintenance and removal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEREK D. KNIGHT whose telephone number is (571)272-7951. The examiner can normally be reached on Mon - Thurs & every other Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3682

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. D. K./
Examiner, Art Unit 3681

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3682